

**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q67285

Satoshi HANADA, et al.

Appln. No.: 09/993,678

Group Art Unit: 1771

Confirmation No.: 7280

Examiner: Victor S. Chang

Filed: November 27, 2001

For: FOAMED POLYOLEFIN RESIN SHEET

**SUBMISSION OF APPEAL BRIEF**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of \$500.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

Patrick F. Gallagher  
Registration No. 54,109

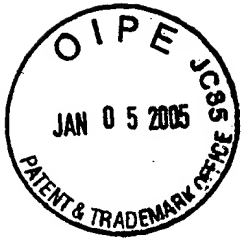
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WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

Date: January 5, 2005



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**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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**I. REAL PARTY IN INTEREST**

The real party in interest is Sumitomo Chemical Co., Ltd., by virtue of an assignment executed by the Appellants on December 26, 2001, and submitted for recordation to the assignment Branch of the U.S. Patent and Trademark Office. The assignment was recorded on March 19, 2002, at Reel 012708, Frame 0532.

**II. RELATED APPEALS AND INTERFERENCES**

To the best of the knowledge and belief of the Appellants, the assignee and the undersigned, there are no other appeals or interferences before the Board of Appeals and Interferences that will directly effect or be effected by the Board's decision in the present appeal.

### **III. STATUS OF CLAIMS**

This is an appeal from the Examiner's Advisory Action, dated December 1, 2004, rejecting Claim 3. Claim 3 is the only claim pending in the present application.

A Notice of Appeal was filed on November 10, 2004.

Claim 3 on appeal is set forth in its entirety in the Appendix attached to this Brief of Appeal.

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192  
U.S. Application No.: 09/993,678

Q67285

#### **IV. STATUS OF AMENDMENTS**

The amendment to Claim 3 made in the Amendment Under 37 C.F.R. § 1.111 filed April 2, 2004, was entered.

**V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

Appellants' invention relates to a polyolefin resin sheet comprising a foamed polyolefin resin layer and a non-foamed surface layer, which is formed of a spectrally-characterized thermoplastic resin composition, and a non-foamed layer formed of a long-chain branched polyolefin resin as an intermediate layer. The spectral character of the thermoplastic resin composition is defined by the ratio  $A1/A2$ , wherein  $A1$  is maximum absorbance of the infrared absorption spectrum of the thermoplastic resin composition within an infrared ray wave number region of from  $1700$  to  $1750\text{ cm}^{-1}$  and  $A2$  is a maximum absorbance of the infrared absorption spectrum of the thermoplastic resin. The  $A1/A2$  ratio of the present invention falls within a range of  $1 \times 10^{-8}$  and  $1 \times 10^{-1}$ .

The presently claimed polyolefin resin sheet is characterized as having a high adhesive strength when laminated with a layer formed of a saponified ethylene-vinyl ester copolymer or with a layer of a thermoplastic resin having relatively low polarity.

**VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The grounds of rejection to be reviewed on appeal are as follows:

whether the Examiner was correct in rejecting Claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Park et al., U.S. Patent No. 5,116,881 ("Park") in view of WO 94/079390 ("WO '390").



## **VII. ARGUMENT**

*Claim 3 has been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Park '881 in view of WO '930.*

It is the Examiner's position that it would have been obvious to one of ordinary skill in the art to substitute the non-foamed tie layer (or intermediate layer) of Park with a long-chain branched polyolefin layer, motivated by the desire to obtain improved melt processability and mechanical properties, as taught by WO '930.

In asserting a *prima facie* case of obviousness, the Examiner relies on WO '930 as teaching that long chain branched polyolefin resin are "characterized by superior processability characteristics of the polymer melts and superior mechanical characteristics of the solid polymers, and are useful for fabrication into a wide variety of articles by conventional fabrication techniques." *See* Non-Final Office Action of January 2, 2004.

Appellants respectfully submit, however, that the presently claimed invention is not rendered obvious by the cited prior art because one of ordinary skill in the art would not have been motivated to incorporate the polyolefin layer of WO '930 into the resin sheet of Park.

Appellants note that Park teaches the utilization of "tie" layers between functional and polypropylene foam layers. Park further discloses that these layers may function adhesives, essentially holding the functional and polypropylene foam layers together. *See* column 8, line 68, through column 9, line 4. In addition, Park teaches that typical tie layers comprise olefin copolymers having polar functionality, *e.g.*, ester, carboxyl and amide groups, and are generally prepared by the copolymerization of an olefin monomer or the graft copolymerization of an

olefin polymer with one or more monomers containing the polar functionality. *See* column 9, lines 5-10.

With respect to WO '930, Appellants assert that WO '930 only teaches that the polymer taught therein possesses good processability characteristics. It is submitted by Appellants, however, that WO '930 merely discloses that the long chain branched polymers taught therein possess the processability characteristics of conventional long chain branched polymer melts and the mechanical characteristics of conventional solid linear polymers. Appellants further submit, however, that WO '930 does not teach whether the long chain branched polymers are capable of serving as adhesive.

Appellants assert that one of ordinary skill in the art would not have been motivated to combine the disparate teachings of Park and WO '930 in order to arrive at the present invention. As discussed above, Park teaches using a tie layer for the purposes of holding together functional and polypropylene foam layers. Park also teaches using specially designed polymers as the tie layer. Conversely, Park teaches that it is undesirable to replace a tie layer with another layer which does not serve as adhesive.

Appellants assert that WO '930, on the other hand, fails to teach that the long chain branched polymers can effectively hold two layers together. WO '930 also fails to teach that the long chain branched polymers taught therein have polar functionality.

Appellants further assert that in view of the fact that there have been many resins characterized in the prior art as having good processability characteristics, the teachings of WO

'930, as well as the prior art as a whole, would not motivate a person of ordinary skill in the art to modify the resin sheet of Park in the manner necessary to arrive at the claimed invention.

With respect to mechanical characteristics, Appellants acknowledge that WO '930 states that the polymer taught therein possesses good impact and tear resistance, good environmental stress crack resistance (ESCR) values and good tensile properties. *See* page 35, lines 16-24. Appellants submit, however, that WO '930 does not teach using the polymer in multilayer products, or does it suggest that the polymer would contribute its characteristics to such multilayer products. Further, because there have been known many resins characterized as having good mechanical characteristics in the prior art, Appellants submit that one of ordinary skill in the art would not have been motivated to arrive at the claimed invention in view of the prior art as whole.

WO '930 merely discloses that the long chain branched polymers possess the processability characteristics of conventional long chain branched polymer melts and the mechanical characteristics of conventional solid linear polymers and that polymers produced in accordance with this invention are useful for fabrication into a wide variety of articles by injection molding, extrusion coating and molding, blown film, cast film, thermoforming and rotational molding. WO '930 does not teach whether the long chain branched polymers are capable of serving as an adhesive.

In view of the foregoing, Appellants submit that one of ordinary skill in the art would not have been motivated to substitute the non-foamed tie layer (or intermediate layer) of Park with the long-chain branched polyolefin layer of WO '930.


APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192  
U.S. Application No.: 09/993,678

Q67285

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

  
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Date: January 6, 2005

**CLAIMS APPENDIX**

CLAIM 3 ON APPEAL:

3. (previously presented): A foamed polyolefin resin sheet comprising a foamed polyolefin resin layer and a non-foamed surface layer said non-foamed surface layer formed of a thermoplastic resin composition having an  $A1/A2$  ratio falling within a range between  $1 \times 10^{-8}$  and  $1 \times 10^{-1}$ , wherein A1 is a maximum absorbance of the infrared absorption spectrum of the thermoplastic resin composition within an infrared ray wave number region of from 1700 to  $1750 \text{ cm}^{-1}$  and A2 is a maximum absorbance of the infrared absorption spectrum of the thermoplastic resin composition within an infrared ray wave number region of from 1455 to  $1465 \text{ cm}^{-1}$ , said resin sheet further comprising a non-foamed layer formed of a long-chain branched polyolefin resin between the foamed layer and the non-foamed surface layer.